



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,382	03/29/2004	Randolph C. Williams	6978-000284	2609
27572	7590	09/20/2005	EXAMINER	
HARNES, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			ESTREMSKY, SHERRY LYNN	
			ART UNIT	PAPER NUMBER
			3681	

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/812,382

Applicant(s)

WILLIAMS ET AL.

Examiner

Sherry L. Estremsky

Art Unit

3681

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7-9 and 13-31 is/are rejected.
- 7) ☒ Claim(s) 3-6 and 10-12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Information Disclosure Statement

1. The four applications listed on the Information Disclosure Statement filed June 2, 2004 have been considered, but the list has not been initialed and no copy is being supplied to the applicant to prevent the application numbers from being printed on any resulting patent.

Claim Objections

2. Claims 13, 20, and 26 are objected to because of the following informalities: in line 31 of each of these claims, "direction" should be --directions--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 13-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Each of claims 13, 20, and 26 incorrectly claims the disclosed invention by claiming that a locked four-wheel drive mode is established wherein relative rotation between the first and second rings is permitted in both directions and that two-wheel drive mode is established

Art Unit: 3681

wherein relative rotation between the first and second rings is prevented in both directions (second to last paragraph of each of the claims). Claim 1 correctly claims relative rotation being prevented in both directions in locked four-wheel drive and relative rotation being permitted in both directions in two-wheel drive, as described in the specification (paragraphs [0046] and [0048]).

The scope of claim 29 cannot be determined since it is written as being dependent on itself.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Williams, U. S. Patent Application Publication 2002/0029948.

Figure 2 shows a power transfer device for use in a motor vehicle shown in figure 1 having a powertrain and first and second drivelines 20 and 34, respectively.

Shaft 50, shown in figure 2, is an input driven by the driveline.

First output 18 interconnects the input 50 to the first driveline 20 (figure 1).

Second output 32 is connected to the second driveline 34.

Bi-directional overrunning mode clutch 58 is operably disposed between the first and second outputs. The mode clutch is operable in a first mode to permit relative rotation between the first and second outputs in a first direction and prevent relative rotation in the second direction (para. [0029], lines 22-24). The mode clutch is operable in a second mode to prevent

Art Unit: 3681

relative rotation between the first and second outputs in both directions (para. [0031], lines 4-8). The mode clutch is operable in a third mode to permit relative rotation between the first and second outputs in both directions (para. [0032], lines 6-7).

A mode shift mechanism is shown in figures 2-7 to be operable in a first mode position to shift the mode clutch into its first mode (figure 4), in a second mode position to shift the mode clutch into its second mode (figure 6), and in a third mode position to shift the mode clutch into its third mode (figure 7).

A shift system, including electric motor 88 and sector plate 86, moves the mode shift mechanism to its first position to establish an on-demand four-wheel drive mode (para. [0029], lines 22-25), to its second mode position to establish a locked four-wheel drive mode (para. [0031], lines 4-9), and to its third mode position to establish a two-wheel drive mode (para. [0032], lines 7-9).

(claim 1)

Figures 2 and 3a show the mode clutch includes a first ring 124 driven by the first output (through sprocket 114), a second ring 118 operably disposed between the first ring 124 and the second output 32. Rollers 134 engage a cam surface 130/132 formed between the first and second rings, and the second ring 118 is adapted to index circumferentially relative to the first ring 124 to cause the rollers 134 to engage the cam surface for coupling the second ring 118 to the first ring 124 and the second output 32, thereby coupling the second output for rotation with the first.

(claim 2)

Figure 2 shows a reduction unit 52 having an input member 64 driven by the input 50 and an output member 82 driven at a reduced speed relative to the input member 64.

Range clutch 54 is operable in a first mode to couple the first output 18 to the input member 64 of the reduction unit and establish a high-range drive connection therebetween (position shown in figure 2), and is operable in a second mode to couple the first output 18 to the output member 82 of the reduction unit to establish a low-range drive connection therebetween (sleeve 72 shifted to the right in figure 2).

A range shift mechanism 76 is operable in a first range position to shift the range clutch into its first mode and in a second position to shift the range clutch into its second mode, and the shift system, including sector plate 86, is operable for coordinating movement of the range shift mechanism and the mode shift mechanism.

(claim 7)

Paragraph [0033] describes the effects of the on-demand high-range four-wheel drive mode being established when the mode shift mechanism is in its first mode position and the range shift mechanism is in its first range position, the locked high-range four-wheel drive mode is established when the mode shift mechanism is in its second mode position and the range shift mechanism is in its first range position, the two-wheel high-range drive mode is established when the mode shift mechanism is in its third mode position and the range shift mechanism is in its first range position, and a locked low-range four-wheel drive mode is established when the mode shift mechanism is in its second mode position and the range shift mechanism is in its second range position.

(claim 8)

The power transfer device shown in figure 2 is a transfer case with an input shaft 50 as its input, a first output shaft 18 as its first output, and a second output shaft 32 as its second output. Sprockets 110 and 114 with chain 116 are a transfer unit driven by the first output shaft 18 (sprocket 110 is splined to shaft 18 at spline 112) with the mode clutch 58 operably disposed between the transfer unit and the second output shaft 32.

(claim 9)

Allowable Subject Matter

7. Claims 306 and 10-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 13-31 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent 6,814,201 (Thomas) November 2004 - discloses a bi-directional overrunning clutch with two rings usable in a transfer case and having modes of operation in which relative rotation between the rings is permitted in one direction and prevented in the other, relative rotation between the rings is permitted in both directions, and relative rotation is prevented in both directions.

The following each discloses a four-wheel drive transfer case with a bi-directional overrunning mode clutch:

U. S. Patent 6,579,205 (Williams) June 2003
U. S. Patent 6,602,159 (Williams) August 2003
U. S. Patent 6,805,652 (Williams) October 2004
U. S. Patent 6,821,227 (Williams) November 2004
U. S. Patent 6,846,262 (Williams et al.) January 2005
U. S. Patent 6,862,953 (Fitzgerald et al.) March 2005

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sherry L. Estremsky whose telephone number is (571) 272-7090. The examiner can normally be reached on Tuesday and Friday from 7:30 a.m. to 6:00 p.m.

Art Unit: 3681

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor can be reached on (571) 272-7095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SLE


SHERRY ESTREMSKY
PRIMARY EXAMINER
AV3681 9-16-05